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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/751,350	12/27/2000	Hiroshi Minagawa	SIP1P043	8814

22434 7590 03/10/2004  
BEYER WEAVER & THOMAS LLP  
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EXAMINER

SEALEY, LANCE W

ART UNIT	PAPER NUMBER
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2671

DATE MAILED: 03/10/2004

7

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/751,350

Applicant(s)

MINAGAWA ET AL.

Examiner

Lance W. Sealey

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 5/6-8-01.
- 4) ☒ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. 7/3-8-04.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 5, 10-11, 14 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over San et al. ("San," U.S. Pat. No. 6,646,653) in view of Kurita et al. ("Kurita," U.S. Pat. No. 5,331,336).

3. With respect to claims 1, 14 and 19, San discloses a video game (col.6, ll.62-66). However, San does not disclose the other elements of these claims; these are disclosed by the Kurita outline drawer.

4. Kurita discloses a computer-readable storage medium storing a program (ROM 101, FIG.3), wherein said program is structured so as to make a computer perform:

- generating a contour-drawing object having a size greater than that of said object (BLACK, FIG.2E presents an illustration of an object, and RED, FIG.2E presents an illustration of a larger contour-drawing object);
- determining positions of said contour-drawing object and said object so that said contour-drawing object thus generated is positioned behind said object when observed from a view point (FIG.2E and col.25, ll.49-53; in order to accomplish an outline of the object (character body), the contour-drawing object (shaded outline) has to be positioned behind the object; and

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- drawing said object at said position thus determined and drawing said contour-drawing object in an optional contour color and at said determined position except for an overlapping portion between said object and said contour-drawing object when observed from the view point.  
(FIG.2E; it is inherent that the drawing of the object is not limited to the colors red and black)

5. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the San video game in view of the Kurita outline-drawing apparatus. Such a modification would increase the visual effect of a pattern such as a graphic image by emphasizing its outline (Kurita, col.2, ll.25-27).

6. Concerning claims 2, 11 and 15, Kurita discloses drawing the object in the order of steps in claim 1 at col.25, ll.40-48.

7. Regarding claim 5, Kurita discloses the contour-drawing object appearing outside the edge of said object when observed from the view point (FIG.2E).

8. Claim 10 is the same as claim 1 except that claim 1 discloses a computer-readable medium storing a program which draws an object, and claim 10 discloses an object drawing method. Since a method of drawing an object (claim 10) is inherent in the program (claim 1), claim 10 is also rejected.

9. Accordingly, in view of the foregoing, claims 1, 2, 5, 10-11, 14-15 and 19 are rejected as being unpatentable under 35 U.S.C. 103(a) by San and Kurita.

10. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over San in view of Kurita and further in view of Dye et al. ("Dye," U.S. Pat. No. 6,518,965).

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11. As shown in the rejection of claim 1, Kurita discloses drawing said object at said determined position and drawing said contour-drawing object at said determined position and in the optional contour color. However, neither San nor Kurita disclose a hidden surface removal treatment using a Z buffer. These elements are disclosed by the Dye graphics system and method for rendering independent 2D and 3D objects at col.34, ll.21-64 (Dye allows for use of a Z-buffer in col.13, ll.53-59).

12. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the San-Kurita video game in view of the Dye rendering system. Such a modification would save time by preventing the drawing of objects that are behind other objects (Dye, col.34, ll.24-26).

13. Accordingly, in view of the foregoing, claim 3 is rejected as being unpatentable under 35 U.S.C. 103(a) by San, Kurita and Dye.

14. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over San in view of Kurita and further in view of Kamakura et al. ("Kamakura," U.S. Pat. No. 6,172,657).

15. Neither San nor Kurita disclose the contour-drawing object generated by expanding the size of the object. However, this is disclosed by the Kamakura display apparatus at col.11, ll.6-19.

16. Therefore, it would have been obvious to one of ordinary skill in the art at the time the inventions was made to have modified the San-Kurita video game in view of the Kamakura display. The user can then readily match the size of the displayed image to the size of the object

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in the outside view (Kamakura, col.11, ll.22-24).

17. Accordingly, in view of the foregoing, claim 4 is rejected as being unpatentable under 35 U.S.C. 103(a) by San, Kurita and Kamakura.

18. Claims 6-9, 12-13, 16-18 and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over San in view of Kurita and further in view of Schaufler, "Image-Based Object Representation by Layered Impostors."

19. With respect to claim 6, neither San nor Kurita disclose the object drawn at said determined position and said contour-drawing object is drawn at said determined position except for the overlapping portion between said object and said contour-drawing object when observed from the view point, by use of texture mapping. However, this element is disclosed by the Schaufler paper at p.101 (Section 3.2, "Layered Impostors").

20. Therefore, it would have been obvious to one of ordinary skill in the art at the time this invention was made to have modified the San-Kurita video game in view of the Schaufler image warping method. Texture mapping makes high-quality rendering possible (Schaufler, "Object representations," pp.100-101, seventh sentence).

21. Concerning claim 7, Schaufler discloses the object drawn at said determined position and said contour-drawing object is drawn at said determined position except for the overlapping portion between said object and said contour-drawing object when observed from the view point, by use of texture mapping with texture varying with a lapse of time (3.4, "Generating the images in the representation", pp.101-103. Figure 5 on p.102 shows an example of image-based object

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representation for a teapot. At the bottom of Figure 5 is a final image derived from the 32-image representation. Schaufler discloses the importance of avoiding holes in the final image, stating that it is sufficient to draw only those layers which will actually contain the texels to close the holes in the final image (last sentence, p.102). Schaufler then writes *when* certain layered imposters are drawn to avoid holes as p.103 begins.).

22. With respect to claims 8, 16, 18 and 20, San discloses a video game, and Kurita discloses a computer-readable storage medium storing a program (ROM 101, FIG.3) which draws an object, wherein said program is structured so as to make a computer perform:

- generating a contour-drawing object having a size greater than that of said object (BLACK, FIG.2E presents an illustration of an object, and RED, FIG.2E presents an illustration of a larger contour-drawing object);
- determining positions of said contour-drawing object and said object so that said contour-drawing object thus generated is positioned behind said object when observed from a view point (FIG.2E and col.25, ll.49-53; in order to accomplish an outline of the object (character body), the contour-drawing object (shaded outline) has to be positioned behind the object; and
- drawing said object at said position thus determined and drawing said contour-drawing object in an optional contour color and at said determined position except for an overlapping portion between said object and said contour-drawing object when observed from the view point. (FIG.2E; it is inherent that the drawing of the object is not limited to the colors red and black)

23. However, still with respect to claims 8, 16, 18 and 20, neither San, Kurita nor Schaufler explicitly disclose the underlined claim limitations: an object comprised of a plurality of polygons, setting a distance from a view point of each polygon forming said contour-drawing

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object and said object so that said contour-drawing object thus generated is positioned behind said object when observed from the view point, and drawing each polygon forming said object and drawing each polygon forming said contour-drawing object in an optional contour color in accordance with a drawing order of said polygons resulting from sequencing of said polygons from the greatest distance from the view point, set in said setting. But it would have been obvious to draw the object and the contour-drawing object using polygons because the use of polygons enables real world objects to be drawn with high realism (Schaufler, "1 Introduction," fourth sentence, p.99).

24. With respect to claims 9, 17 and 21, San discloses a video game, and Kurita discloses a computer-readable storage medium storing a program (ROM 101, FIG.3) which draws an object, wherein said program is structured so as to make a computer perform:

- generating a contour-drawing object having a size greater than that of said object (Kurita, BLACK, FIG.2E presents an illustration of an object, and RED, FIG.2E presents an illustration of a larger contour-drawing object);
- determining positions of said contour-drawing object and said object so that said contour-drawing object thus generated is positioned behind said object when observed from a view point (Kurita, FIG.2E and col.25, ll.49-53; in order to accomplish an outline of the object (character body), the contour-drawing object (shaded outline) has to be positioned behind the object); and
- drawing a pixel according to a polygon having a distance closest to the view point, set in said setting, out of polygons projectable into said pixel, wherein when the polygon projected into the pixel is a polygon forming said object, said pixel is drawn according to said polygon (Schaufler, "3.2 Layered Impostors," p.101, first three sentences)
- and wherein when the polygon projected into the pixel is a polygon forming said



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contour-drawing object

(obvious because if Schaufler discloses layered impostors in order to draw a teapot (see Figure 3, p.101), layered impostors can be used to draw a contour-drawing object)

said pixel is drawn in an optional contour color.

(Kurita, FIG.2E; it is at least obvious that the drawing of the object is not limited to the colors red and black)

25. Claim 13 is the same as claim 9 except that claim 9 discloses a computer-readable medium storing a program which draws an object, and claim 13 discloses an object drawing method. Since a method of drawing an object (claim 13) is at least obvious in the program (claim 9), claim 13 is also rejected. Finally, San discloses drawing an object in a virtual space because any scene in a video game presents a virtual world, and scenes are comprised of objects.

26. Accordingly, in view of the foregoing, claims 6-9, 12-13, 16-18 and 20-21 are rejected as being unpatentable under 35 U.S.C. 103(a) by San, Kurita and Schaufler.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the Office should be directed to the examiner, Lance Sealey, whose telephone number is (703) 305-0026.

He can be reached from 7:00 am-3:30 pm Monday-Friday EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Zimmerman, can be reached at (703) 305-9798.

**Any response to this action should be mailed to:**

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MS Non-Fee Amendment

Commissioner for Patents

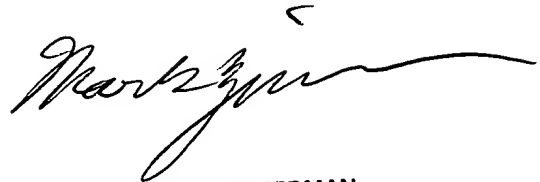
P.O. Box 1450

Alexandria, VA 22313-1450

**or faxed to:**

**(703) 872-9306**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,  
Arlington, VA, Sixth Floor (Receptionist).

A handwritten signature in black ink, appearing to read 'Mark Zimmerman', with a long horizontal flourish extending to the right.

MARK ZIMMERMAN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600

## Interview Summary

**Application No.**

09/751,350

**Applicant(s)**

MINAGAWA ET AL.

**Examiner**

Lance W. Sealey

**Art Unit**

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All participants (applicant, applicant's representative, PTO personnel):

(1) Lance W. Sealey, examiner. (3) \_\_\_\_\_.

(2) Michael Lee, applicants' representative. (4) \_\_\_\_\_.

Date of Interview: 05 November 2003.

Type: a) ☒ Telephonic b) ☐ Video Conference  
c) ☐ Personal [copy given to: 1) ☐ applicant 2) ☐ applicant's representative]

Exhibit shown or demonstration conducted: d) ☐ Yes e) ☐ No.  
If Yes, brief description: \_\_\_\_\_.

Claim(s) discussed: 1.

Identification of prior art discussed: \_\_\_\_\_.

Agreement with respect to the claims f) ☒ was reached. g) ☐ was not reached. h) ☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: The examiner asked for clarification of the term "contour-drawing object" in claim 1, since he believed that the specification did not adequately explain what a "contour-drawing object" was. In response, the applicants' representative faxed a clarification of this term (attached).

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN ONE MONTH FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

\_\_\_\_\_  
Examiner's signature, if required

## Summary of Record of Interview Requirements

### Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

#### Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews

##### Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

##### 37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,  
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

#### Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.